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Why Do We Rape, Kill and Sleep Around? The fault, dear Darwin, lies not in our ancestors, but in ourselves.

by Sharon Begley

Among scientists at the university of New Mexico that spring, rape was in the air. One of the professors, biologist Randy Thornhill, had just coauthored *A Natural History of Rape: Biological Bases of Sexual Coercion*, which argued that rape is (in the vernacular of evolutionary biology) an adaptation, a trait encoded by genes that confers an advantage on anyone who possesses them. Back in the late Pleistocene epoch 100,000 years ago, the 2000 book contended, men who carried rape genes had a reproductive and evolutionary edge over men who did not: they sired children not only with willing mates, but also with unwilling ones, allowing them to leave more offspring (also carrying rape genes) who were similarly more likely to survive and reproduce, unto the nth generation. That would be us. And that is why we carry rape genes today. The family trees of prehistoric men lacking rape genes petered out.

The argument was well within the bounds of evolutionary psychology. Founded in the late 1980s in the ashes of sociobiology, this field asserts that behaviors that conferred a fitness advantage during the era when modern humans were evolving are the result of hundreds of genetically based cognitive “modules” preprogrammed in the brain. Since they are genetic, these modules and the behaviors they encode are heritable—passed down to future generations—and, together, constitute a universal human nature that describes how people think, feel and act, from the nightclubs of Manhattan to the farms of the Amish, from the huts of New Guinea aborigines to the madrasas of Karachi. Evolutionary psychologists do not have a time machine, of course. So to figure out which traits were adaptive during the Stone Age, and therefore bequeathed to us like a questionable family heirloom, they make logical guesses. Men who were promiscuous back then were more evolutionarily fit, the researchers reasoned, since men who spread their seed widely left more descendants. By similar logic, evolutionary psychologists argued, women who were monogamous were fitter; by being choosy about their mates and picking only those with good genes, they could have healthier children. Men attracted to young, curvaceous babes were fitter because such women were the most fertile; mating with dumpy, barren hags is not a good way to grow a big family tree. Women attracted to high-status, wealthy males were fitter; such men could best provide for the kids, who, spared starvation, would grow up to have many children of their own. Men who neglected or even murdered their stepchildren (and killed their unfaithful wives) were fitter because they did not waste their resources on nonrelatives. And so on, to the fitness-enhancing value of rape. We in the 21st century, asserts evo psych, are operating with Stone Age minds.

Over the years these arguments have attracted legions of critics who thought the science was weak and the message (what philosopher David Buller of Northern Illinois University called “a get-out-of-jail-free card” for heinous behavior) pernicious. But the reaction to the rape book was of a whole different order. Biologist Joan Roughgarden of Stanford University called it “the latest ‘evolution made me do it’ excuse for criminal behavior from evolutionary psychologists.” Feminists, sex-crime prosecutors and social scientists denounced it at rallies, on television and in the press.

Among those sucked into the rape debate that spring was anthropologist Kim Hill, then Thornhill's colleague at UNM and now at Arizona State University. For decades Hill has studied the Ache, hunter-gatherer tribesmen in Paraguay. "I saw Thornhill all the time," Hill told me at a barbecue at an ASU conference in April. "He kept saying that he thought rape was a special cognitive adaptation, but the arguments for that just seemed like more sloppy thinking by evolutionary psychology." But how to test the claim that rape increased a man's fitness? From its inception, evolutionary psychology had warned that behaviors that were evolutionarily advantageous 100,000 years ago (a sweet tooth, say) might be bad for survival today (causing obesity and thence infertility), so there was no point in measuring whether that trait makes people more evolutionarily fit today. Even if it doesn't, evolutionary psychologists argue, the trait might have been adaptive long ago and therefore still be our genetic legacy. An unfortunate one, perhaps, but still our legacy. Short of a time machine, the hypothesis was impossible to disprove. Game, set and match to evo psych.

Or so it seemed. But Hill had something almost as good as a time machine. He had the Ache, who live much as humans did 100,000 years ago. He and two colleagues therefore calculated how rape would affect the evolutionary prospects of a 25-year-old Ache. (They didn't observe any rapes, but did a what-if calculation based on measurements of, for instance, the odds that a woman is able to conceive on any given day.) The scientists were generous to the rape-as-adaptation claim, assuming that rapists target only women of reproductive age, for instance, even though in reality girls younger than 10 and women over 60 are often victims. Then they calculated rape's fitness costs and benefits. Rape costs a man fitness points if the victim's husband or other relatives kill him, for instance. He loses fitness points, too, if the mother refuses to raise a child of rape, and if being a known rapist (in a small hunter-gatherer tribe, rape and rapists are public knowledge) makes others less likely to help him find food. Rape increases a man's evolutionary fitness based on the chance that a rape victim is fertile (15 percent), that she will conceive (a 7 percent chance), that she will not miscarry (90 percent) and that she will not let the baby die even though it is the child of rape (90 percent). Hill then ran the numbers on the reproductive costs and benefits of rape. It wasn't even close: the cost exceeds the benefit by a factor of 10. "That makes the likelihood that rape is an evolved adaptation extremely low," says Hill. "It just wouldn't have made sense for men in the Pleistocene to use rape as a reproductive strategy, so the argument that it's preprogrammed into us doesn't hold up."

These have not been easy days for evolutionary psychology. For years the loudest critics have been social scientists, feminists and liberals offended by the argument that humans are preprogrammed to rape, to kill unfaithful girlfriends and the like. (This was a reprise of the bitter sociobiology debates of the 1970s and 1980s. When Harvard biologist Edward O. Wilson proposed that there exists a biologically based human nature, and that it included such traits as militarism and male domination of women, left-wing activists—including eminent biologists in his own department—assailed it as an attempt "to provide a genetic justification of the status quo and of existing privileges for certain groups according to class, race, or sex" analogous to the scientific justification for Nazi eugenics.) When Thornhill appeared on the Today show to talk about his rape book, for instance, he was paired with a sex-crimes prosecutor, leaving the impression that do-gooders might not like his thesis but offering no hint of how scientifically unsound it is.

That is changing. Evo psych took its first big hit in 2005, when NIU's Buller exposed a flaw after fatal flaw in key studies underlying its claims, as he laid out in his book *Adapting Minds*. Anthropological studies such as Hill's on the Ache, shooting down the programmed-to-rape idea,

have been accumulating. And brain scientists have pointed out that there is no evidence our gray matter is organized the way evo psych claims, with hundreds of specialized, preprogrammed modules. Neuroscientist Roger Bingham of the University of California, San Diego, who describes himself as a once devout “member of the Church of Evolutionary Psychology” (in 1996 he created and hosted a multimillion-dollar PBS series praising the field), has come out foursquare against it, accusing some of its adherents of an “evangelical” fervor. Says evolutionary biologist Massimo Pigliucci of Stony Brook University, “Evolutionary stories of human behavior make for a good narrative, but not good science.”

Like other critics, he has no doubt that evolution shaped the human brain. How could it be otherwise, when evolution has shaped every other human organ? But evo psych’s claims that human behavior is constrained by mental modules that calcified in the Stone Age make sense “only if the environmental challenges remain static enough to sculpt an instinct over evolutionary time,” Pigliucci points out. If the environment, including the social environment, is instead dynamic rather than static—which all evidence suggests—then the only kind of mind that makes humans evolutionarily fit is one that is flexible and responsive, able to figure out a way to make trade-offs, survive, thrive and reproduce in whatever social and physical environment it finds itself in. In some environments it might indeed be adaptive for women to seek sugar daddies. In some, it might be adaptive for stepfathers to kill their stepchildren. In some, it might be adaptive for men to be promiscuous. But not in all. And if that’s the case, then there is no universal human nature as evo psych defines it.

That is what a new wave of studies has been discovering, slaying assertions about universals right and left. One evo-psych claim that captured the public’s imagination—and a 1996 cover story in NEWSWEEK—is that men have a mental module that causes them to prefer women with a waist-to-hip ratio of 0.7 (a 36-25-36 figure, for instance). Reprising the rape debate, social scientists and policymakers who worried that this would send impressionable young women scurrying for a measuring tape and a how-to book on bulimia could only sputter about how pernicious this message was, but not that it was scientifically wrong. To the contrary, proponents of this idea had gobs of data in their favor. Using their favorite guinea pigs—American college students—they found that men, shown pictures of different female body types, picked Ms. 36-25-36 as their sexual ideal. The studies, however, failed to rule out the possibility that the preference was not innate—human nature—but, rather, the product of exposure to mass culture and the messages it sends about what’s beautiful. Such basic flaws, notes Bingham, “led to complaints that many of these experiments seemed a little less than rigorous to be underpinning an entire new field.”

Later studies, which got almost no attention, indeed found that in isolated populations in Peru and Tanzania, men consider hourglass women sickly looking. They prefer 0.9s—heavier women. And last December, anthropologist Elizabeth Cashdan of the University of Utah reported in the journal *Current Anthropology* that men now prefer this non-hourglass shape in countries where women tend to be economically independent (Britain and Denmark) and in some non-Western societies where women bear the responsibility for finding food. Only in countries where women are economically dependent on men (such as Japan, Greece and Portugal) do men have a strong preference for Barbie. (The United States is in the middle.) Cashdan puts it this way: which body type men prefer “should depend on [italics added] the degree to which they want their mates to be strong, tough, economically successful and politically competitive.”

Depend on? The very phrase is anathema to the dogma of a universal human nature. But it is the essence of an emerging, competing field. Called behavioral ecology, it starts from the premise

that social and environmental forces select for various behaviors that optimize people's fitness in a given environment. Different environment, different behaviors—and different human “natures.” That's why men prefer Ms. 36-25-36 in some cultures (where women are, to exaggerate only a bit, decorative objects) but not others (where women bring home salaries or food they've gathered in the jungle).

And it's why the evo psych tenet that men have an inherited mental module that causes them to prefer young, beautiful women while women have one that causes them to prefer older, wealthy men also falls apart. As 21st-century Western women achieve professional success and gain financial independence, their mate preference changes, scientists led by Fhionna Moore at Scotland's University of St Andrews reported in 2006 in the journal *Evolution and Human Behaviour*. The more financially independent a woman is, the more likely she is to choose a partner based on looks than bank balance—kind of like (some) men. (Yes, growing sexual equality in the economic realm means that women, too, are free to choose partners based on how hot they are, as the cougar phenomenon suggests.) Although that finding undercuts evo psych, it supports the “it depends” school of behavioral ecology, which holds that natural selection chose general intelligence and flexibility, not mental modules preprogrammed with preferences and behaviors. “Evolutionary psychology ridicules the notion that the brain could have evolved to be an all-purpose fitness-maximizing mechanism,” says Hill. “But that's exactly what we keep finding.”

One of the uglier claims of evo psych is that men have a mental module to neglect and even kill their stepchildren. Such behavior was adaptive back when humans were evolving, goes the popular version of this argument, because men who invested in stepchildren wasted resources they could expend on their biological children. Such kindly stepfathers would, over time, leave fewer of their own descendants, causing “support your stepchildren” genes to die out. Men with genes that sculpted the “abandon stepchildren” mental module were evolutionarily fitter, so their descendants—us—also have that preprogrammed module. The key evidence for this claim comes from studies showing that stepchildren under the age of 5 are 40 times more likely to be abused than biological children.

Those studies have come under fire, however, for a long list of reasons. For instance, many child-welfare records do not indicate who the abuser was; at least some abused stepchildren are victims of their mother, not the stepfather, the National Incidence Study of Child Abuse and Neglect reported in 2005. That suggests that records inflate the number of instances of abuse by stepfathers. Also, authorities are suspicious of stepfathers; if a child living in a stepfamily dies of maltreatment, they are nine times more likely to record it as such than if the death occurs in a home with only biological parents, found a 2002 study led by Buller examining the records of every child who died in Colorado from 1990 to 1998. That suggests that child-abuse data undercount instances of abuse by biological fathers. Finally, a 2008 study in Sweden found that many men who kill stepchildren are (surprise) mentally ill. It's safe to assume that single mothers do not exactly get their pick of the field when it comes to remarrying. If the men they wed are therefore more likely to be junkies, drunks and psychotic, then any additional risk to stepchildren reflects that fact, and not a universal mental module that tells men to abuse their new mate's existing kids. Martin Daly and Margo Wilson of Canada's McMaster University, whose work led to the idea that men have a mental module for neglecting stepchildren, now disavow the claim that such abuse was ever adaptive. But, says Daly, “attempts to deny that [being a stepfather] is a risk factor for maltreatment are simply preposterous and occasionally, as in the writings of David Buller, dishonest.”

If the data on child abuse by stepfathers seem inconsistent, that's exactly the point. In some

circumstances, it may indeed be adaptive to get rid of the other guy's children. In other circumstances, it is more adaptive to love and support them. Again, it depends. New research in places as different as American cities and the villages of African hunter-gatherers shows that it's common for men to care and provide for their stepchildren. What seems to characterize these situations, says Hill, is marital instability: men and women pair off, have children, then break up. In such a setting, the flexible human mind finds ways "to attract or maintain mating access to the mother," Hill explains. Or, more crudely, be nice to a woman's kids and she'll sleep with you, which maximizes a man's fitness. Kill her kids and she's likely to take it badly, cutting you off and leaving your sperm unable to fulfill their Darwinian mission. And in societies that rely on relatives to help raise kids, "it doesn't make sense to destroy a 10-year-old stepkid since he could be a helper," Hill points out. "The fitness cost of raising a stepchild until he is old enough to help is much, much less than evolutionary biologists have claimed. Biology is more complicated than these simplistic scenarios saying that killing stepchildren is an adaptation that enhances a man's fitness."

Even the notion that being a brave warrior helps a man get the girls and leave many offspring has been toppled. Until missionaries moved in in 1958, the Waorani tribe of the Ecuadorian Amazon had the highest rates of homicide known to science: 39 percent of women and 54 percent of men were killed by other Waorani, often in blood feuds that lasted generations. "The conventional wisdom had been that the more raids a man participated in, the more wives he would have and the more descendants he would leave," says anthropologist Stephen Beckerman of Pennsylvania State University. But after painstakingly constructing family histories and the raiding and killing records of 95 warriors, he and his colleagues reported last month in *Proceedings of the National Academy of Sciences*, they turned that belief on its head. "The badass guys make terrible husband material," says Beckerman. "Women don't prefer them as husbands and they become the targets of counterraids, which tend to kill their wives and children, too." As a result, the über-warriors leave fewer descendants — the currency of evolutionary fitness — than less aggressive men. Tough-guy behavior may have conferred fitness in some environments, but not in others. It depends. "The message for the evolutionary-psychology guys," says Beckerman, "is that there was no single environment in which humans evolved" and therefore no single human nature.

I can't end the list of evo-psych claims that fall apart under scientific scrutiny without mentioning jealousy. Evo psych argues that jealousy, too, is an adaptation with a mental module all its own, designed to detect and thwart threats to reproductive success. But men's and women's jealousy modules supposedly differ. A man's is designed to detect sexual infidelity: a woman who allows another man to impregnate her takes her womb out of service for at least nine months, depriving her mate of reproductive opportunities. A woman's jealousy module is tuned to emotional infidelity, but she doesn't much care if her mate is unfaithful; a man, being a promiscuous cad, will probably stick with wife No. 1 and their kids even if he is sexually unfaithful, but may well abandon them if he actually falls in love with another woman.

Let's not speculate on the motives that (mostly male) evolutionary psychologists might have in asserting that their wives are programmed to not really care if they sleep around, and turn instead to the evidence. In questionnaires, more men than women say they'd be upset more by sexual infidelity than emotional infidelity, by a margin of more than 2-to-1, David Buss of the University of Texas found in an early study of American college students. But men are evenly split on which kind of infidelity upsets them more: half find it more upsetting to think of their mate falling in love with someone else; half find it more upsetting to think of her sleeping with someone else. Not very strong evidence for the claim that men, as a species, care more about sexual infidelity. And

in some countries, notably Germany and the Netherlands, the percentage of men who say they find sexual infidelity more upsetting than the emotional kind is only 28 percent and 23 percent. Which suggests that, once again, it depends: in cultures with a relaxed view of female sexuality, men do not get all that upset if a woman has a brief, meaningless fling. It does not portend that she will leave him. It is much more likely that both men and women are wired to detect behavior that threatens their bond, but what that behavior is depends on culture. In a society where an illicit affair portends the end of a relationship, men should indeed be wired to care about that. In a society where that's no big deal, they shouldn't—and, it seems, don't. New data on what triggers jealousy in women also undercut the simplistic evo-psych story. Asked which upsets them more—imagining their partner having acrobatic sex with another woman or falling in love with her—only 13 percent of U.S. women, 12 percent of Dutch women and 8 percent of German women chose door No. 2. So much for the handy “she's wired to not really care if I sleep around” excuse.

Critics of evo psych do not doubt that men and women are wired to become jealous. A radar for infidelity would indeed be adaptive. But the evidence points toward something gender-neutral. Men and women have both evolved the ability to distinguish between behavior that portends abandonment and behavior that does not, and to get upset only at the former. Which behavior is which depends on the society.

Evolutionary psychology is not going quietly. It has had the field to itself, especially in the media, for almost two decades. In large part that was because early critics, led by the late evolutionary biologist Stephen Jay Gould, attacked it with arguments that went over the heads of everyone but about 19 experts in evolutionary theory. It isn't about to give up that hegemony. Thornhill is adamant that rape is an adaptation, despite Hill's results from his Ache study. “If a particular trait or behavior is organized to do something,” as he believes rape is, “then it is an adaptation and so was selected for by evolution,” he told me. And in the new book *Spent*, evolutionary psychologist Geoffrey Miller of the University of New Mexico reasserts the party line, arguing that “males have much more to gain from many acts of intercourse with multiple partners than do females,” and there is a “universal sex difference in human mate choice criteria, with men favoring younger, fertile women, and women favoring older, higher-status, richer men.”

On that point, the evidence instead suggests that both sexes prefer mates around their own age, adjusted for the fact that men mature later than women. If the male mind were adapted to prefer the most fertile women, then AARP-eligible men should marry 23-year-olds, which—Anna Nicole Smith and J. Howard Marshall notwithstanding—they do not, instead preferring women well past their peak fertility. And, interestingly, when Miller focuses on the science rather than tries to sell books, he allows that “human mate choice is much more than men just liking youth and beauty, and women liking status and wealth,” as he told me by e-mail.

Yet evo psych remains hugely popular in the media and on college campuses, for obvious reasons. It addresses “these very sexy topics,” says Hill. “It's all about sex and violence,” and has what he calls “an obsession with Pleistocene just-so stories.” And few people—few scientists—know about the empirical data and theoretical arguments that undercut it. “Most scientists are too busy to read studies outside their own narrow field,” he says.

Far from ceding anything, evolutionary psychologists have moved the battle from science, where they are on shaky ground, to ideology, where bluster and name-calling can be quite successful. UNM's Miller, for instance, complains that critics “have convinced a substantial portion of the educated public that evolutionary psychology is a pernicious right-wing conspiracy,” and complains that believing in evolutionary psychology is seen “as an indicator of conservatism, dis-

agreeableness and selfishness.” That, sadly, is how much too much of the debate has gone. “Critics have been told that they’re just Marxists motivated by a hatred of evolutionary psychology,” says Buller. “That’s one reason I’m not following the field anymore: the way science is being conducted is more like a political campaign.”

Where, then, does the fall of evolutionary psychology leave the idea of human nature? Behavioral ecology replaces it with “it depends” — that is, the core of human nature is variability and flexibility, the capacity to mold behavior to the social and physical demands of the environment. As Buller says, human variation is not noise in the system; it is the system. To be sure, traits such as symbolic language, culture, tool use, emotions and emotional expression do indeed seem to be human universals. It’s the behaviors that capture the public imagination—promiscuous men and monogamous women, stepchild-killing men and the like—that turn out not to be. And for a final nail in the coffin, geneticists have discovered that human genes evolve much more quickly than anyone imagined when evolutionary psychology was invented, when everyone assumed that “modern” humans had DNA almost identical to that of people 50,000 years ago. Some genes seem to be only 10,000 years old, and some may be even younger.

That has caught the attention of even the most ardent proponents of evo psych, because when the environment is changing rapidly—as when agriculture was invented or city-states arose—is also when natural selection produces the most dramatic changes in a gene pool. Yet most of the field’s leaders, admits UNM’s Miller, “have not kept up with the last decade’s astounding progress in human evolutionary genetics.” The discovery of genes as young as agriculture and city-states, rather than as old as cavemen, means “we have to rethink to foundational assumptions” of evo psych, says Miller, starting with the claim that there are human universals and that they are the result of a Stone Age brain. Evolution indeed sculpted the human brain. But it worked in malleable plastic, not stone, bequeathing us flexible minds that can take stock of the world and adapt to it.

Notes

¹<http://www.newsweek.com/2009/06/19/why-do-we-rape-kill-and-sleep-around.html>